

THE HONORABLE JOHN C. COUGHENOUR

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

PUGET SOUNDKEEPER ALLIANCE, SIERRA
CLUB, and IDAHO CONSERVATION
LEAGUE,

Plaintiffs,

v.

ANDREW WHEELER,¹ in his official capacity
as Acting Administrator of the United States
Environmental Protection Agency, and R.D.
JAMES,² in his official capacity as Secretary of
the Army for Civil Works,

Defendants.

Case No. 2:15-cv-01342-JCC

DECLARATION OF RICHARD C. FINCH

1. I, Dr. Richard C. Finch, have been a resident of the Cookeville, Tennessee community since 1975. I currently reside approximately one-half mile north of the Cookeville

¹ Please note that pursuant to Fed. R. Civ. P. 25(d)(1), Andrew Wheeler, Acting Administrator of the U.S. Environmental Protection Agency, is substituted as a defendant for Scott Pruitt, who was substituted for Gina McCarthy.

² Please note that pursuant to Fed. R. Civ. P. 25(d)(1), R.D. James, Secretary of the Army for Civil Works, is substituted as a defendant for Jo-Ellen Darcy.

city limit, but within the city's Urban Growth Boundary, where I have lived since 1979. Before that I lived within the city limits from 1975-1979.

2. I am a longterm member of the Upper Cumberland Section of the Sierra Club which is based in Cookeville, having been involved with Sierra Club on and off since I moved to Cookeville.

3. I am a professional geologist with a PhD in geology from the University of Texas at Austin, 1972. I taught geology at Tennessee Technological University for 25 years, 1975-2000. Courses taught included GEOL 222, Geology of Karst and Caves. I have a lifelong interest in cave exploration and cave conservation.

4. I have a long term interest in the complex system of caves underlying the City of Cookeville and have personally witnessed that major caves provide valuable stormwater drainage services critical to the well-being of the city. I have an on-going concern for the deteriorating quality of our groundwater and connected surface waters, and the changes to underground stormwater drainage systems due to urbanization.

5. Motivated by these interests, I raised funds and advocated for the conservation of Cummins Falls, which is situated downstream from Cookeville on the Blackburn Fork State Scenic River, and I helped to get the area designated as Cummins Falls State Park in 2012. Cummins Falls is one of the largest waterfalls in the State of Tennessee and has been a popular recreation site for generations. The plunge pool at the base of the falls has been described in a nationally circulated magazine as one of the ten best swimming holes in America. Unfortunately, a developer bought the land and subdivided it into lots, threatening to close all public access. The Tennessee Parks & Greenways Foundation ("TPGF") mounted a statewide fund-raising effort and bought the land in order to bring it into state ownership. Both my wife (who is a

member of the Board of TPGF) and I worked on the fund-raising campaign and made a substantial personal contribution. Since the area became a State Park in 2012, visitation has soared to over 200,000 per year.

6. In recent years, I have also voiced my opposition to the permitting of a proposed commercial development known as the Browning Development on an undeveloped 40-acre property that fronts on South Walnut Ave. and on Interstate Drive in Cookeville. The project was recently approved and is currently being constructed. I am very concerned about the Browning Development's potential environmental impacts. The site formerly included two wetlands, the larger of which was designated Exceptional Tennessee Waters ("ETW"), plus five swallets (openings through which streams descend underground). I participated in a project to dye-trace subsurface water flow through the area, which confirmed that the development parcel drained naturally through a subterranean water course to Pigeon Roost Creek, a major surface stream that has already been seriously affected by pollutants from the City of Cookeville (see paragraph 8, below). I examined the original engineering plans for the Browning development to see how they expected to handle stormwater runoff and found them to appear to me as a geologist to be inadequate. At that time, they planned to use injection wells to handle the overflow from the stormwater retention ponds, but the plans did not factor in rock type or permeability. Later they abandoned the concept of using drilled wells to take the overflow.

7. The area near the Browning development formerly included other wetlands too, which have been lost to urbanization along Interstate Drive. Rather than permitting the destruction of the remaining wetlands in this area, I have an interest in protecting the site as a public park in which the wetlands would be an educational attraction. I worry about the effects that the loss of all of these wetlands will have on connected water bodies, for example increasing

flows that lead to flooding or increasing pollutants that might have been captured and filtered by the wetlands.

8. For example, Pigeon Roost Creek, which has long been on the State's Clean Water Act section 303d list of impaired streams (streams that don't meet one or more water quality standards), is a major tributary to the Falling Water River, which in turn flows through Burgess Falls State Natural Area (a park attracting well over 150,000 visitors on an annual basis for its scenery, boating, fishing, and swimming), and from there into Center Hill Lake, the source of Cookeville's drinking water. I therefore have an interest in ensuring that all measures possible are taken to prevent further deterioration to the water quality of Pigeon Roost Creek, including ensuring strict permitting requirements and other protections afforded by the Clean Water Act for these creeks, their tributaries, and wetlands that are hydrologically connected to them via subsurface drainage.

9. Some known examples of Cookeville's natural underground drainage system and its complexities are outlined below, followed by a list of the available source materials.

a. The City of Cookeville was founded in the mid-19th century in karst terrane (land forms directly dependent on the nature of the underlying bedrock), very possibly because of the good springs commonly associated with karst. The city lies in an area of closed depressions, sinkholes with open swallets, springs and cave entrances, all features common to karst terrane. The karst features are developed in Mississippian Period limestone strata, the Warsaw Formation and the St. Louis Limestone.

b. While the various springs are no longer as important for drinking water as they once were, the cave systems underlying Cookeville perform an essential and monetarily valuable service to the city by forming natural conduits to remove stormwater

runoff from the city environs. According to Hart *et al.* (2009), 14,610 acres, that is, some 45 percent of the 32,622 acres within the Cookeville Urban Growth Boundary, drain underground into sinkholes and swallets, rather than draining through normal surface streams.

c. My personal property is impacted by storm water runoff that is conveyed through underground hydrological connections. In 2013 I participated in a dye trace immediately north of Cookeville city limits, showing how increased stormwater runoff shed from a new apartment complex flows into a sinkhole on an adjacent property, thereby adversely impacting not only the adjacent property containing the sinkhole, but also the spring and pond where the runoff resurges to the surface on my property.

d. Cookeville's caves also provide unusual hazards to various enterprises in the city. I led the exploration and mapping and hydrologic studies of Tires-to-Spare Cave, a cave only discovered in 1994 when its roof fell in unexpectedly, creating an entrance to the hitherto unknown cave, and threatening two homes in a new residential development. The cave was explored and mapped and shown to be connected to a major swallet in Ensor Park by a 1995 dye trace. Ensor Sink, as the swallet is known, drains some 818 acres of Cookeville, and the stream flowing into the sink carries immense quantities of solid waste and trash — including objects as large as shopping carts and items of furniture. Some 30 automobile tires counted in Tires-to-Spare Cave gave rise to its sardonic naming.

e. During the course of my involvement in Cookeville's cave systems I co-authored two technical reports submitted to the city government: "The Ensor Sink Connection: Present and Future Subterranean Drainage Problems related to Ensor Sink

and Tires-to-Spare Cave” by Dr. Richard C. Finch and Walter K. Crawford, III (geology major), 1995, 48 p., and “A Study of the Breedings Mill Branch - Ensor Sink Drainage” by Dr. Sidney W. Jones and Dr. Richard C. Finch, 2004, 53 p., which was supported by a \$10,000 grant from the city for equipment.

f. As a part of the field work for the 1995 reports, a dye trace was performed to demonstrate the underground drainage connection from the sinkhole known as Ensor Sink to the cave known as Tires-to-Spare Cave. For the 2004 report two additional dye traces were performed to further elucidate the subterranean flow connections. These traces demonstrated that, in addition to Ensor Sink, two sinkholes known as Wal-Mart Sink and Red Kap Sink also feed surface water into the same subsurface system.

g. Capshaw Cave, mapped to a length of 4.52 miles, is the largest known cave under Cookeville (and one of the longest caves known to underlie an American city). At the time it was being explored and mapped by cavers it was seriously polluted with raw sewage from leaking city sewer lines. This problem has been partially remediated, but water quality in the cave stream remains poor. Capshaw Cave drains some 2,212 acres of Cookeville, fed by several surface sinks as shown on Fig. 4 of Faulkerson *et al.* (1981): Warehouse Sink, Saxony Sink, Denton Sink, Waterfall Sink as demonstrated by means of dye traces, and most probably Terry Cave sink as inferred from general geologic principles. Water from Capshaw resurges within city limits at Capshaw Spring, only to flow a short distance through a karst window (“The Canal”) to go underground a second time and join the cave stream flowing through Tires-to-Spare Cave (Finch and Crawford, 1995).

h. In 1997 two additional dye traces demonstrated hydrologic connections from Wal-Mart Sink and Red Kap Sink to Tires-to-Spare Cave. One of these traces also showed that under high water conditions flow from Ensor Sink follows two routes, connecting to both Tires-to-Spare Cave and to Capshaw Spring (Jones and Finch, 2004), a type of drainage complexity that is far more common underground than in surface water flow.

i. At the downstream end of Tires-to-Spare Cave, the combined flow from Tires-to-Spare and Capshaw caves continues under a major city street to resurge in Ament Cave (which is a home to a summer maternity colony of federally endangered Gray bats (*Myotis grisescens*)). This now large cave stream comes to the surface again at Ament Resurgence (still within city limits) which, along with nearby Pigeon Roost Spring, forms the headwaters of Pigeon Roost Creek, a degraded stream on Tennessee's Clean Water Act section 303(d) list.

j. It is worthy of note that the urban runoff emerging from Ament Resurgence to form Pigeon Roost Creek is augmented a short distance downstream by the effluent of Cookeville's wastewater treatment plant. As noted above, flow from Pigeon Roost Creek eventually enters Center Hill Lake, the source of Cookeville's drinking water. Because the community drinks recycled urban runoff and treated sewage water, all measures possible should be taken to prevent further deterioration to the water quality of Pigeon Roost Creek.

k. While the Capshaw-Ensor Sink — Tires-to-Spare — Ament Cave underground drainage system is the largest known in Cookeville, dye traces by several geohydrologists and cavers have delineated underground watershed divides and other

subterranean drainage systems. The Trog Sink swallet consumes runoff from some 700 acres of Cookeville, sending it northward underground to Big Spring Karst Window, which in turn drains further north to Big Spring (Faulkerson *et al.*, 1981), where it resurges to form an important tributary to Blackburn Fork (a State Scenic River and home to Cummins Falls State Park—another park receiving over 100,000 visitors annually). Dye traces have also demonstrated a number of additional subterranean hydrologic connections that connect to Pigeon Roost Creek downstream from Ament Resurgence (Faulkerson *et al.*, 1981).

1. Another, less well defined subsurface drainage system (or systems) drains generally south into Hudgens Creek, as shown by dye traces from three separate sinkholes which all feed Essex Spring, one of the main sources of Hudgens Creek.

10. In sum, Cookeville's karst drainage is quite complicated, as shown by the hydrologic studies and cave exploration work that has been done. It is equally clear that many aspects of the underground flow connections and routes remain unknown. Among the unknowns must be included the drainage routes and connections for the waters consumed by the five swallets on the 40 acres of the Browning Development.

11. I understand that the U.S. Environmental Protection Agency ("EPA") and the U.S. Army Corps of Engineers ("Corps") put a rule into place in 2015 that defined the scope of "waters of the U.S." under the Clean Water Act. I also understand that the 2015 rule provides for the protection of wetlands and other waters that are adjacent to jurisdictional surface streams. I have a longstanding interest in preserving water quality within the watershed of the Blackburn Fork State Scenic River and Cummins Falls, which I helped to get designated as a State Park, as well as Center Hill Lake which provides the source of my drinking water. I therefore have an

interest in preserving the portions of that rule that define jurisdiction under the Clean Water Act to include all tributaries to traditionally navigable waters up to their ordinary high water mark; those provisions that define jurisdiction to include all adjacent wetlands and other waters that meet the rule's description of adjacency; and those provisions that afford a case-specific jurisdictional analysis to other waters that fall within the rule's distance limitations. These provisions further my interests in protecting the surface water, groundwater, and drinking water resources in my community, by minimizing the administrative burden of demonstrating that important tributaries and wetlands within the Blackburn Fork River and Center Hill Lake watersheds are entitled to Clean Water Act protections, and thereby helping to ensure that all available measures are taken to prevent deterioration to the quality of these waters.

12. I also understand that in 2018 the EPA and the Corps finalized a new “Applicability Date Rule” that seeks to suspend the earlier 2015 rule for a period of two years by adding a new “applicability date” in 2020. I am therefore concerned about this new rule withdrawing these protective provisions of the 2015 rule. If these inclusive provisions in the 2015 rule's definition of “waters of the United States” are not reinstated and made applicable again, my ability to help protect the water quality in these waters would be diminished, along with my ability to use and enjoy those waters for aesthetic enjoyment and as a source of drinking water. The court can redress my potential injury by rejecting the Applicability Date Rule and allowing the 2015 rule to go back into effect.

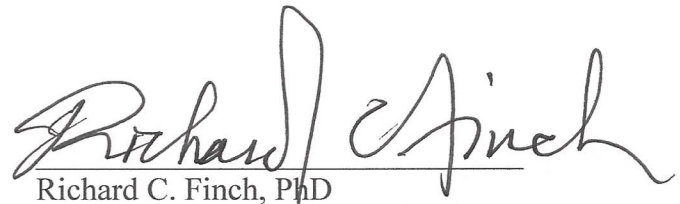
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I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on: 18 July, 2018.


Richard C. Finch, PhD
TTU Professor of Geology (retired)

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Finch, Richard C. and Walter K. Crawford, III, 1995, "The Ensor Sink Connection: Present and Future Subterranean Drainage Problems related to Tires-to-Spare Cave": unpublished technical report submitted to the City of Cookeville, 10 July 1995, 48 p.

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George, Dennis B., Nick H. Taylor, Thomas E. Pride, Albert Ogden, Yvette R. Clark, Robert Forde, Hugh H. Mills, 1990, "Assessment of the Cookeville, TN, Stormwater Management System": Center for the Management, Utilization and Protection of Water Resources, Tennessee Technological University, 122 p.

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